

LAWN CARE PESTICIDE USE IN NEW JERSEY: 2001 SURVEY

Introduction

The New Jersey Pesticide Control Program (NJPCP) began a series of pesticide use surveys in 1985. These surveys address pesticide use in the state of New Jersey for agriculture, golf courses, termite control, right-of-way, mosquito control, and lawn care. The lawn care survey is conducted every three years and targets pesticides used for lawn care purposes. This report focuses on the fourth survey completed in the lawn care series (2001).

All statewide pesticide use surveys are performed under the authority of the New Jersey Pesticide Control Code, N.J.A.C. 7:30-1 et seq., requiring applicators to maintain pesticide records for two years and to submit use records to the state when requested. This regulative authority provides an accuracy and level of response that is difficult to duplicate in a voluntary, nationwide survey. In fact, these New Jersey surveys almost represent a pesticide usage census rather than a probabilistic survey.

The information collected from the NJPCP pesticide use surveys is used by agencies within the NJ Department of Environmental Protection along with other state agencies to aid in research, exposure management and monitoring efforts in areas such as ground water protection, farm worker protection and education, and residual pesticide sampling. The survey data are also entered into state and federal geographical information systems for geographical distribution.

Methods

The NJPCP's registration records were used to identify all 3857 licensed commercial applicators holding a category "3B" (turf) on his or her license. Survey forms were mailed along with instructional letters and return envelopes asking for 2001 lawn care pesticide use. A survey form was sent to each applicator, but since two or three applicators can work on the same commercial business, the accompanying cover letter requested that only one form be returned for each establishment to avoid duplication of response. A total of three mailings (one initial and two follow-ups to non-respondents) were sent during the first seven months of 2002.

The survey requested information on each pesticide product used. This included trade name, EPA registration number, percent active ingredient, amounts applied and number of acres treated.

Survey information was entered into a database file. This information file was then merged with a second database that linked chemical names with trade names, and a subprogram converted total amounts of formulated product to total amounts of active ingredient (lbs ai).

Results

Once all three mailings were completed, 3349 out of 3857 (87%) applicators were accounted for.

Table 1 lists the chemicals and their respective amounts appearing in the survey.

Table 2 selects out the highest use compounds.

Table 3 shows lawn care pesticide use by county.

In reporting and evaluating pesticide use, it is important to consider the many, diverse influences on pesticide use. No single factor, or even set of factors, can completely account for fluctuations in the amounts of pesticide active ingredients used from survey to survey. Weather conditions such as temperature and rainfall, in terms of duration, timing and amounts or degrees, influence pest pressure and the associated response. In agricultural settings, issues such as cropping patterns and the associated pest impacts vary from year to year. Economic factors play a significant role, ranging from crop demand to golf course playability to product and/or service cost. The changing face of land use also plays a part. While agricultural acreage has been declining, new home building starts and the associated lawns around those new homes have been increasing.

Another factor is the adoption of IPM (Integrated Pest Management). Short term, some pest control situations may require increased pesticide applications beyond the alternative means contained in an IPM program. Long term, however, IPM should result in overall pesticide use reduction. This may be confounded by the increased use of reduced-risk alternatives that may have higher application rates than the materials they replace.

[Curt Brown, Research Scientist II] 2/03

Table 1. Pesticide amounts (lbs. active ingredient) reported in the New Jersey 2001 Lawn Care Pesticide Use Survey.

HERBICIDES:

2,4-D	74462
2,4-DP	3419
Benfluralin	12696
Bensulide	349
Bentazon	26
Bromacil	104
Clopyralid	4775
Dicamba	9068
Dichlobenil	42
Diquat	1
Dithiopyr	16681
Diuron	734
DSMA, MSMA	1973
Endothal	36
Ethofumesate	3
Fenoxaprop-ethyl	257
Fluazifop-butyl	1
Glufosinate-ammonium	246
Glyphosate	26426
Imazapyr	25
Isoxaben	1034
MCPA	36749
Mecoprop	18569
Metalochlor	122
Oryzalin	3416
Oxadiazon	20
Oxyfluorfen	<1
Paraquat	164
Pelargonic acid	1858
Pendimethalin	56887
Prodiamine	6213
Prometon	234
Quinclorac	1547
Siduron	455
Simazine	52
Triclopyr	7391
Trifluralin	8158
TOTAL HERBICIDES:	294193

INSECTICIDES:

Abamectin	<1
Acephate	246
Bendiocarb	79
Bifenazate	8
Bifenthrin	1599
Boric Acid	3
Carbaryl	11656
Chlorpyrifos	9072
Cyfluthrin	87
Cyhalothrin	79
Dazomet	366
Deltamethrin	30
Diazinon	2389
Dicofol	13
Dimethoate	2
Disulfoton	2
Fluvalinate	3
Fonofos	45
Halofenozide	2195
Hexythiazox	5
Hydramethylnon	<1
Imidacloprid	19366
Isazofos	1
Isofenphos	77
Lindane	8
Malathion	78
Methomyl	6
Microbial (Bt)	2
Oil	14512
Permethrin	1000
Soap	393
Spinosad	<1
Trichlorfon	16075
TOTAL INSECTICIDES:	79397

FUNGICIDES:

Anilazine	8
Azoxystrobin	21745
Benomyl	18
Captan	10
Chlorothalonil	11348
Etridiazole	1
Fenarimol	59
Flutolanil	44
Fosetyl-al	1232
Iprodione	1456
Mancozeb	3876
Mefenoxam	1
Metalaxyl	171
Myclobutanil	294
Oxythioquinox	27
PMA	<1
Propamocarb HCL	501
Propiconazole	305
Quintozene	240
Thiophanate	2611
Thiophanate-methyl	1294
Triadimefon	6069
Trifloxystrobin	33
Vinclozolin	598
TOTAL FUNGICIDES:	51941

GROWTH HORMONES:

Amidochlor	1
Ethephon	<1
Mefluidide	11
Trinexapac-ethyl	73
TOTAL HORMONES:	85

REPELLENTS:

Anthraquinone	324
Methyl Anthranilate	30
TOTAL REPELLENTS:	354

MISCELLANEOUS:

Calcium chloride	135
TOTAL MISCELL:	135

TOTAL PESTICIDE USE: 426108

Herbicides:	69%
Insecticides:	19%
Fungicides:	12%
Growth Hormones:	0%
Repellents:	0%
Miscellaneous:	0%

Table 2. Highest use compounds in 2001 from the main pesticide categories. Shown are compounds $\geq 5\%$ of class.

Compound	Lbs active ingredient	% of class	% of total pesticide use
HERBICIDES:			
2,4-D	74462	25%	17%
Pendimethalin	56887	19%	13%
MCPA	36749	13%	9%
Glyphosate	26426	9%	6%
Mecoprop	18569	6%	4%
Dithiopyr	16681	6%	4%
INSECTICIDES:			
Imidacloprid	19366	24%	5%
Trichlorfon	16075	20%	4%
Oil	14512	18%	3%
Carbaryl	11656	15%	3%
Chlorpyrifos	9072	11%	2%
FUNGICIDES:			
Azoxystrobin	21745	42%	5%
Chlorothalonil	11348	22%	3%
Triadimefon	6069	12%	1%
Mancozeb	3876	8%	1%
Thiophanate	2611	5%	1%

Table 3. Total pesticide amounts (in pounds active ingredient) by county, 2001 lawn care survey.

COUNTY	Amount	% of Total Use
Atlantic	13948	3%
Bergen	47634	11%
Burlington	27545	7%
Camden	9937	2%
Cape May	22764	5%
Cumberland	3669	1%
Essex	8167	2%
Gloucester	9555	2%
Hudson	711	<1%
Hunterdon	1836	1%
Mercer	29390	7%
Middlesex	22990	5%
Monmouth	69437	16%
Morris	69645	16%
Ocean	17281	4%
Passaic	6892	2%
Salem	2150	1%
Somerset	55433	13%
Sussex	1113	<1%
Union	4265	1%
Warren	1748	1%
TOTAL	426108	100%